NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Issue Date: May ##, 2019

Region: Wilmington Regional Office
County: New Hanover
NC Facility ID: 6500049
Inspector's Name: Ashby Armistead
Date of Last Inspection: 08/22/2018
Compliance Code: 3 / Compliance - inspection

Facility Data

Applicant (Facility's Name): Corning Incorporated

Facility Address:
Corning Incorporated
310 North College Road
Wilmington, NC 28405

SIC: 3229 / Pressed And Blown Glass, Nec
NAICS: 327212 / Other Pressed and Blown Glass and Glassware Manufacturing

Facility Classification: Before: Title V **After:** Title V
Fee Classification: Before: Title V **After:** Title V

Permit Applicability (this application only)

SIP: 15A NCAC 02D .0516, .0521, 15A NCAC 2Q .0513 (renewal)
NSPS: 40 CFR 60 Subpart IIII
NESHAP: 40 CFR 63 Subpart ZZZZ, DDDDD
PSD: N/A
PSD Avoidance: 15A NCAC 02Q.0317
NC Toxics: N/A
112(r): N/A
Other: N/A

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Carol Yates Environmental Supervisor (910) 784-7476 310 North College Road Wilmington, NC 28405	Michele Holbrook Plant Manager (910) 784-7200 310 North College Road Wilmington, NC 28405	Michele Holbrook Plant Manager (910) 784-7200 310 North College Road Wilmington, NC 28405

Application Data

Application Number: 6500049.17C
Date Received: 12/29/2017
Application Type: Renewal
Application Schedule: TV-Renewal

Existing Permit Data
Existing Permit Number: 03809/T53
Existing Permit Issue Date: 03/19/2018
Existing Permit Expiration Date: 09/30/2018

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2017	0.0600	215.89	28.00	3.58	13.79	65.75	47.82 [Chlorine]
2016	0.0600	194.82	26.11	3.42	10.82	63.75	47.42 [Chlorine]
2015	0.0800	170.26	31.49	3.25	8.60	49.38	36.48 [Chlorine]
2014	0.0700	159.95	39.85	3.09	8.98	62.28	46.34 [Chlorine]
2013	0.0800	180.60	42.31	3.18	10.37	67.10	49.45 [Chlorine]

Review Engineer: Richard Simpson

Review Engineer's Signature: **Date: May ##, 2019**

Comments / Recommendations:
Issue: 03809/T54
Permit Issue Date: May ##, 2019
Permit Expiration Date: April 30, 2024

I. Introduction:

Corning, Incorporated currently holds Title V Permit No. 03809T53 with an expiration date of September 30, 2018 for fiber optics manufacturing facility in Wilmington, New Hanover County, North Carolina. The primary purpose of this application is for permit renewal. The renewal application 6500049.17C was received on December 29, 2017, which was at least nine months prior to the expiration date, as required by General Permit Condition 3.K. The application was considered complete on that date. Therefore, the existing permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the existing permit shall remain in effect until the renewal permit has been issued or denied.

II. Facility Description

Corning is an optical waveguide manufacturing facility located in Wilmington, New Hanover County, North Carolina. Corning manufactures various types of fiber optic cable. Weak HCl, a by-product, is also sold. There are three main steps to this process. A methane flame oxidizes various metal halides that are deposited as soot on a ceramic rod. This is known as lay down. In consolidation, the treated rod is dried in a Cl_2 filled oven to remove moisture. During drawing, the glass rod is slowly heated and drawn into a thin thread. After a special coating is applied, the cable is placed on a spool and then tested to determine if the desired optical properties were achieved. The facility operates on a 24/7/52 schedule with approximately 1,000 employees.

III. History/Background/Application Chronology

March 19, 2018 – Air Permit T53 was issued.

August 22, 2018 - The facility was inspected by Wilmington Regional Office engineer Ashby Armistead. At the time of the inspection, the facility appeared to operate in compliance with all applicable regulations and permit conditions.

February 15-26, 2019 – The Air Quality Analysis Branch received updated facility modeling included in the renewal application. The modeling was approved by DAQ meteorologist Matthew Porter and Tom Anderson.

February 21- March 15, 2019 - Phone conversations and emails were made between facility representatives Carol Yates and Jennifer Adams and DAQ permit engineer Richard Simpson for recommendations and any potential updates since the renewal application.

March 8, 2019 – A facility site visit was made with DAQ representatives Richard Simpson and Matthew Porter.

March 15-26, 2019 – The facility, Wilmington Regional Office, and Stationary Compliance Section were requested by the Permitting Section to comment on the renewal. Comments were received and included in the permit from DAQ

March ##, 2019 – DRAFT permit sent to public notice and EPA for review prior to issuance. The 30-day public comment period ended **April ##, 2019** with the receipt of no comments. The 45-day EPA review period ended **May ##, 2019** with the receipt of no comments.

April ##, 2019 – TVEE changes were approved by Ms. Jenny Sheppard TVEE Coordinator.

May ##, 2019 – Permit 03809T54 was signed and issued.

IV. Permit Modifications/Changes and ESM Discussion

The following table lists all changes made from previous permit 03809T53:

Page(s)	Section	Description of Change(s)
Cover and throughout	Throughout	Updated all tables, dates, and permit revision numbers.
Attachment	Insignificant Activities	Based on historical emission data, consolidated all "Diesel storage tanks with a maximum capacity of 65,000 gallons" as one system and the identification changed to IES-DS.
Attachment	Insignificant Activities	Based on historical emission data, consolidated all "House vacuum systems with fabric filters" as one system and the identification changed to IES-HOUSEVACS.
Attachment	Insignificant Activities	Based on historical emission data, consolidated all "Soot vacuum systems with fabric filters" as one system and the identification changed to IES-SOOTVACS.
Throughout	Throughout	Corrected the regulatory reference from 2D and 2Q to 02D and 02Q.
Throughout	Throughout	Corrected wording change from assure to ensure.
1	Section 1	For ES-002 control device description, updated by removing "each".
1	Section 1	Removed references to the previous permit modification since they are not applicable for this permit renewal.
	Section 1	Updated footnote language for CD-BH-7A.
	Section 2.1 A.1., Section 2.1 B.1.	Updated language with the DAQ shell Title V permit conditions for 15A 02D .0515: Particulates from Fuel Miscellaneous Industrial Processes.
	Section 2.1 A.2., Section 2.1 C.1. Section 2.1 F.2.	Updated language with the DAQ shell Title V permit conditions for 15A 02D .0516: Sulfur Dioxide Emissions from Combustion Sources.
	Section 2.1 A.3., Section 2.1 B.2., Section 2.1 C.2., Section 2.1 F.3.	Updated language with the DAQ shell Title V permit conditions for 15A 02D .0521: Control of Visible Emissions.
5, 13	Section 1 and Section 2.1 C.	Per renewal, added new source with description of "One CI diesel-fired emergency fire pump (160 hp)" and ID No. ES-FP3. The source is subject to NSPS IIII and MACT ZZZZ.
14	Section 2.1 C.3. and 4.	Updated MACT ZZZZ language for generators and emergency fire pumps.
6, 21	Section 1 and Section 2.1 F.	Per renewal, deleted boilers ES-T5HB-2 and EST5HB-3 since they will no longer be operational.
6, 22	Section 1 and Section 2.1 F5.	Since ES-HB is applicable to MACT DDDDD, included the applicable regulations.
26	Section 2.2 B.1.b.iv.	Deleted "or tested emission factors (July 2016)".
26	Section 2.2 B.1.d.	Deleted old testing requirements from the previous modification since the test has already been performed.
28	Section 2.2 D.1.	Per renewal, updated modeling was performed and approved by DAQ's meteorologist Matthew Porter and Tom Anderson on February 26, 2019. Deleted emission source contributions since the emission limits are from the stack.
28	Section 2.2 D.1.b.i.(A)	Per renewal, updated the section language to include "where applicable".
28	Section 2.2 E.	Updated the soot vacuum system ID No. to SOOTVACS.
32	Section 2.3 A.1.	Per renewal, updated CAM minimum pressure for ES-002 from 0.2 to 0.1 in inches of water.
32	Section 2.3 A.1.b.	Per renewal, added the word "hour" in the Data Collection Procedure.
32	Section 2.3 A.1.c.	Deleted old testing effective dates.

Page(s)	Section	Description of Change(s)
28-37	General Conditions	The General Conditions were updated to the latest version of DAQ shell version 5.3 08/12/2018.

There were changes made to the Title V Equipment Editor (TVEE) under this permit renewal and modification.

V. Regulatory Review/Equipment Changes

The facility is currently subject to the following regulations:

a. 15A NCAC 2D .0503, "Particulates from Fuel Burning Indirect Heat Exchangers"
b. 15A NCAC 02D .0515, "Particulates from Miscellaneous Industrial Processes"
c. 15A NCAC 02D .0516, "Sulfur Dioxide Emissions from Combustion Sources"
d. 15A NCAC 02D .0521, "Control of Visible Emissions"
e. 15A NCAC 02D .0524, "New Source Performance Standards (40 CFR Part 60 Subpart IIII)"
f. 15A NCAC 02D .0535, "Excess Emissions Reporting and Malfunctions"
g. 15A NCAC 02D .0614 "Compliance Assurance Monitoring" (40 CFR Part 64, CAM Rule)
h. 15A NCAC 02D .1100 "Control of Toxic Air Pollutants"
i. 15A NCAC 02D .1109 "Case-by-Case Maximum Achievable Control Technology (MACT)"
j. 15A NCAC 02D .1111, "Maximum Achievable Control Technology (40 CFR 63, Subpart ZZZZ)"
k. 15A NCAC 02D .1806, "Control and Prohibition of Odorous Emissions"
l. 15A NCAC 02Q .0317 "Avoidance Conditions" for 15A NCAC 2D .0530 (PM10 and NOx)
m. 15A NCAC 02Q .0711 "Emission Rates Requiring a Permit"

An extensive review for each applicable regulation is not included in this document. For a discussion of MACT, CAM, and PSD requirements, see Section 6. The permit will be updated to reflect the most current stipulations for all applicable regulations. Detail changes are noted in the above Table of Changes.

Corning Incorporated sent permit application **6500049.17C** for a Title V renewal on December 29, 2017 with slight changes to the permit. Natural gas-fired humidification boilers (I.D. No. ES-T5HB-2 and ES-T5HB-3) are no longer in use at the facility and deleted from the permit. One CI diesel-fired emergency fire pump (I.D. No. ES-FP3) is new and added to the permit. All of the emergency fire pumps could qualify as insignificant activities, but the applicant preferred the sources to be in the main permit and have all the applicable regulations listed out. There were also several insignificant activities that were consolidated.

VI. NSPS, NESHAPS/MACT, PSD, 112(r), CAM, BART

NSPS

40 CFR Part 60, Subpart IIII

The new 160 hp One CI diesel-fired emergency fire pump (I.D. No. ES-FP3) is subject to the notification, testing, recordkeeping, and reporting requirements of NSPS for Stationary Compression Ignition Internal Combustion Engines, 40 CFR 60, Subpart IIII.

NESHAPS/MACT

40 CFR 63 Subpart ZZZZ

This facility is a major source of HAPs with the potential to emit 10 tpy of multiple HAPs, including hydrogen chloride, chlorine and hydrogen fluoride. 40 CFR Part 63, Subpart ZZZZ "National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE) applies to the three diesel-fired emergency generators (ID Nos. ES-EPG1, ES-EPG2, and ES-EPG3). Pursuant to 40 CFR 63.6590(b)(3)(iii), the three diesel-fired emergency generators do not have to meet the requirements of 40 CFR 63 Subpart ZZZZ and of Subpart A, including initial notification requirements. Emergency fire pumps (ID Nos. ES-FP1, ES-FP2, and ES-FP3) are also subject to 40 CFR Part 63, Subpart ZZZZ. Pursuant to 40 CFR 63.6590(c)(6), ES-FP-3 must meet the requirements of 40 CFR 63 Subpart ZZZZ and Subpart A by meeting the requirements of 40 CFR part 60 subpart IIII.

CAA § 112(j); Case-by-Case MACT for Boilers & Process Heaters

Boiler (ID Nos. ES-HB) is subject to 2D .1109, Case-by-Case MACT requirements. This boiler fires natural gas. The facility is required to conduct annual inspections and tune-ups of the boilers under 2D .1109. The facility has to comply until May 19, 2019 and after that date, the facility has to be in compliance with the NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63 Subpart DDDDD. No changes are needed under this permit renewal and minor modification.

40 CFR 63 Subpart DDDDD

Boiler (ID Nos. ES-HB) is subject to 40 CFR 63, Subpart DDDDD "National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters" and Subpart A "General Provisions. This boiler fires natural gas. The Permittee shall complete the initial tune up and the one-time energy assessment no later than May 20, 2019. The facility must submit a Notification of Compliance Status to the DAQ per permit Section 2.1 F.5.e. For (ID Nos. ES-HB), each annual tune-up shall be conducted every five years. This permit renewal does not affect this status.

NSR/PSD

The facility currently has a facility wide NOx and PM-10 emissions limit of less than 250 tons per year to avoid PSD applicability. Therefore, the facility is classified a PSD minor.

112(r) – This facility is subject to Section 112(r) of the Clean Air Act requirements because it stores regulated substances in quantities above the thresholds in the Rule per Form A3. In addition, the facility submitted a Risk Management Plan (RMP) to EPA pursuant to 40 CFR Part 68.10 or Part 68.150 on 2/17/2016.

CAM - Five emissions sources **(ES-002, ES-004, and ES-006 through ES-008)** are subject to Compliance Assurance Monitoring and follow the facility's CAM plan for sources with PM10 emissions. An Alternative Operating Scenario is proposed for the source **(ES-006)**. The air flow will increase from source **(ES-006)** while the air to cloth ratio will increase at the existing bagfilter **(CD-BH-4)** when two of the 12 modules are operating;

VII. Facility Wide Air Toxics (State Enforceable Only)

In permit renewal application, a Toxic Air Pollutants modeling evaluation was made to determine if the facility exceed the applicable emissions rates and to ensure that the acceptable ambient air quality levels (AAL) were not exceeded. The facility performed updated modeling and the modeling was approved by DAQ's meteorologist Matthew Porter and Tom Anderson on February 26, 2019.

VIII. Facility Emissions Review

The actual emissions of the last five years are listed in the first page of this review.

IX. Compliance Status

During the most recent inspection, conducted on August 23, 2018 by Jim Hafner of the MRO, the facility appeared to be in compliance with all of the applicable requirements. The have been no compliance issues within the past five years.

X. Public Notice/EPA and Affected State(s) Review

A thirty-day public notice period and a forty-five-day EPA review period is required for this modification of the Title V permit. A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 02Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 02Q .0522, a copy of each permit application, each proposed permit and each final permit pursuant shall be provided to the EPA. Also pursuant to 02Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice is provided to the public under 02Q .0521 above

EPA's 45 Day Review period

Ms. Heather Ceron (U.S. EPA, Region IV) was provided a PROPOSED permit for review on March ##, 2019. EPA 45-day review period ended on May ##, 2019. No comments were offered or received.

Public Notice

The 30-day public notice of the PROPOSED permit was posted on the NCDAQ website on March ##, 2019. No comments were offered or received.

XI. Other Regulatory Considerations

- A P.E. seal was not required for the permit renewal.
- A consistency determination was not required for the permit renewal.
- An application fee was not required for the permit renewal.
- New Hanover County has triggered increment tracking under PSD for particulate matter 10 (PM_{10}), nitrogen oxide (NO_x), and sulfur dioxide (SO_2). This renewal will result in an increase in 0.1 pounds per hour of PM_{10}, 6.7 pounds per hour of NO_x, and 0.5 pounds per hour of SO_2.

XII. Recommendations

The permit renewal application for Corning Incorporated, New Hanover County, North Carolina has been reviewed by DAQ to determine compliance with all procedures and requirements. The DAQ has determined that this facility is complying or will achieve compliance, as specified in the permit, with all requirements that are applicable to the affected sources. The DAQ recommends the issuance of Air Permit No. 03809T54.

Attachment 1

DIVISION OF AIR QUALITY
February 26, 2019

MEMORANDUM

TO: Richard Simpson, Environmental Engineer, RCO
Dean Carroll, Permit Coordinator, WIRO

FROM: Matthew Porter, Meteorologist, AQAB

THROUGH: Tom Anderson, AQAB Supervisor, AQAB

SUBJECT: Review of Air Toxics Modeling Analysis for Corning, Inc. – Wilmington Facility
Facility ID: 6500049
Wilmington, NC New Hanover County

I have reviewed the dispersion modeling analysis, received February 15, 2019, for the Corning, Inc. optical waveguide manufacturing facility located in Wilmington, New Hanover County, NC. The modeling analysis was conducted to evaluate air toxics ambient impacts from revised (increased) emissions estimated as part of a Title V renewal application effort and subsequent modeling report dated August 2017. The revised facility-wide emissions of chlorine, fluorides, hydrogen chloride, and hydrogen fluoride were estimated to exceed toxic air pollutant (TAP) emissions rates (TPERs) outlined in 15A NCAC 02Q .0700. Ultimately, the air toxics modeling analysis of evaluated facility-wide TAP emissions adequately demonstrated compliance with Acceptable Ambient Levels (AALs) outlined in 15A NCAC 02D.1104, on a source-by-source basis.

Modeled stack release parameters are provided in the attached Table A1. Project and facility-wide modeled TAP emissions are shown in the attached Table A2. Emission sources included four stacks or point sources. All point source emissions shown in Table A2 were modeled assuming 8,760 hours/year operation.

AERMOD (version 16216r) using five years (2012-2016) of surface and upper air meteorological data compiled from the Wilmington Airport and Newport/Morehead City NWS Station, respectively, was used to evaluate impacts in both simple and complex terrain. Direction-specific building downwash parameters, calculated using EPA's BPIP-PRIME program (04274), were used as input to AERMOD to determine building downwash effects on plume rise and effects on entrainment of stack emissions into the cavity and turbulent wake zones downwind of existing buildings. The building downwash analysis included 45 buildings and four stacks. Receptors were modeled around the facility's property line at 25-meter intervals. One receptor grid was modeled off-property extending approximately 2 km with a receptor spacing of 100 meters. In all, a total of 1,766 receptors were modeled. Buildings, sources, and receptors elevations and receptor dividing streamline heights were calculated from 1-arc-second resolution USGS NED terrain data using the AERMOD terrain pre-processor AERMAP (version 18081). All modeled buildings, sources, and receptors were geo-located within the modeling domain based on the horizontal North American Datum of 1983 (NAD83) and Zone 18 of the Universal Transverse Mercator (UTM) coordinate system.

Modeled baseline emissions impacts for each TAP and associated averaging period are shown in

Table 1 below as a percentage of the applicable AAL.

Table 1.
Maximum Modeled Toxics Impacts
Corning, Inc., Wilmington, NC

Pollutant	Averaging Period	AAL ($\mu g/m^3$)	Maximum Modeled Impacts % of AAL
Chlorine	1-hour	900	66.9 %
	24-hour	37.5	82.4 %
Fluorides	1-hour	250	43.6 %
	24-hour	16	36.0 %
Hydrogen Chloride	1-hour	700	67.0 %
Hydrogen Fluoride	1-hour	250	45.9 %
	24-hour	30	19.3 %

This compliance demonstration assumes the sources modeled, point source parameters, and pollutant emission rates used in the dispersion modeling analysis were correct.

cc: Tom Anderson
Matthew Porter

Table A1. Modeled Release Parameters for Point Sources

Source Description	Model ID	X-utm (m)	Y-utm (m)	Elev. (m)	Release Ht. (m)	Exit Temp. (K)	Exit Vel. (m/s)	Stack Diam. (m)	Release Configuration
Stack 2a, Glass Modification	S2A	235915.0	3793833.4	9.8	39.62	290.90	8.82	1.37	Vertical
Stack 3, Optical Waveguide Laydown	S3	235882.2	3793683.2	10.9	36.58	320.90	31.77	1.30	Vertical
Stack 5, Optical Waveguide Laydown	S5	235881.0	3793544.3	11.6	36.58	308.20	17.61	1.45	Vertical
Stack 6, Fluoride Abatement	S6	235896.6	3793788.3	10.2	36.58	410.90	12.47	0.41	Vertical

Table A2. Modeled Emission Rates

Source Description	Model ID	Chlorine (lb/hr)	Fluorides (lb/hr)	Hydrogen Chloride (lb/hr)	Hydrogen Fluoride (lb/hr)
Stack 2a, Glass Modification	S2A	1.557E+01	2.820E+00	1.212E+01	2.970E+00
Stack 3, Optical Waveguide Laydown	S3	6.553E+01	2.500E+00	1.287E+02	1.900E+00
Stack 5, Optical Waveguide Laydown	S5	3.510E+00	0.000E+00	7.897E-01	0.000E+00
Stack 6, Fluoride Abatement	S6	0.000E+00	4.960E+00	0.000E+00	3.021E+00